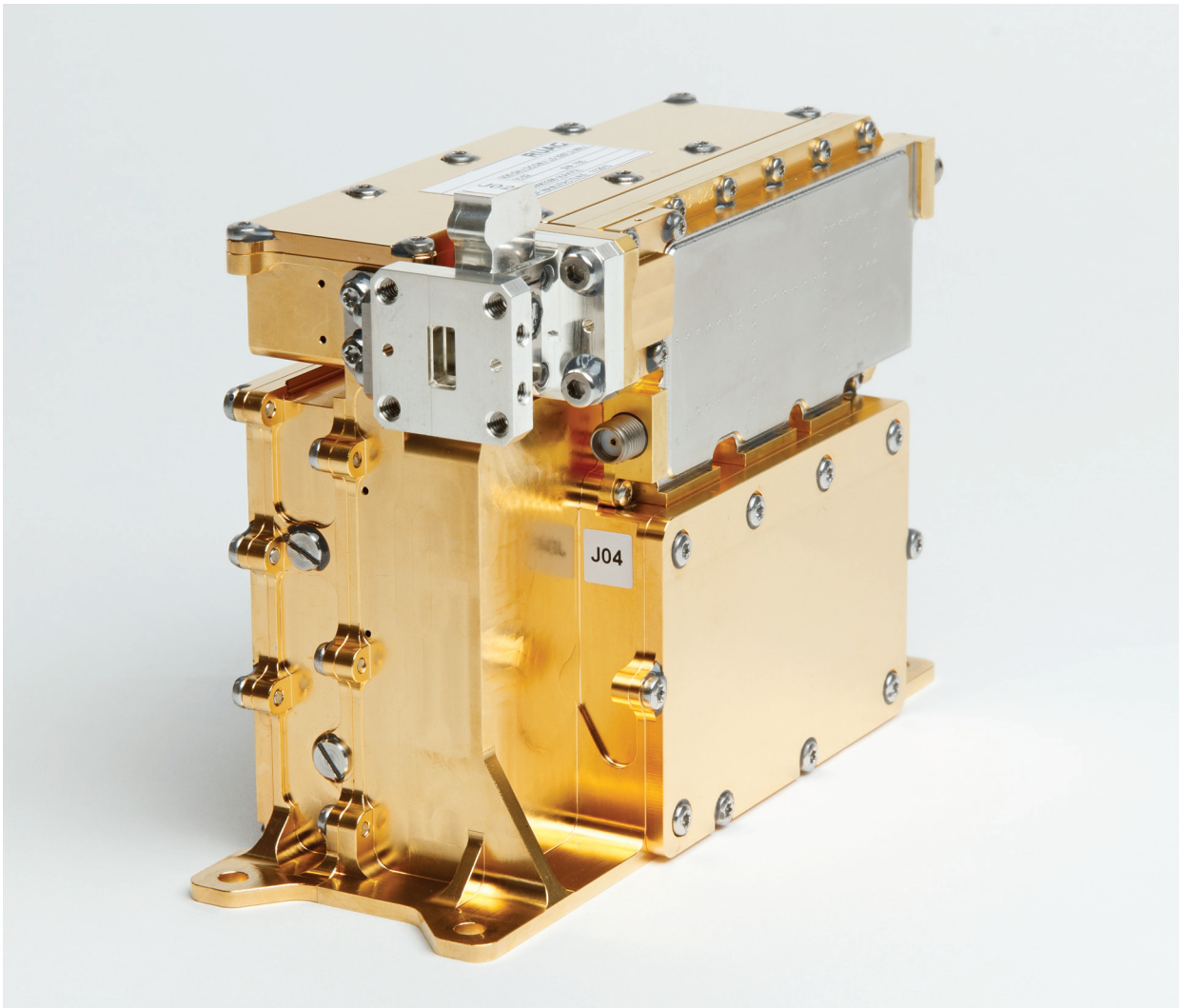


Telecom: Ka-band Compact Frequency Receiver and Converter

RUAG Space novel Compact Frequency Receiver and Converter for Ka-band payloads meet the highest performance and reliability requirements. Application of new technology enables small size, low mass and efficient manufacturing.



Compact Frequency Receiver and Converter for Ka-band payloads

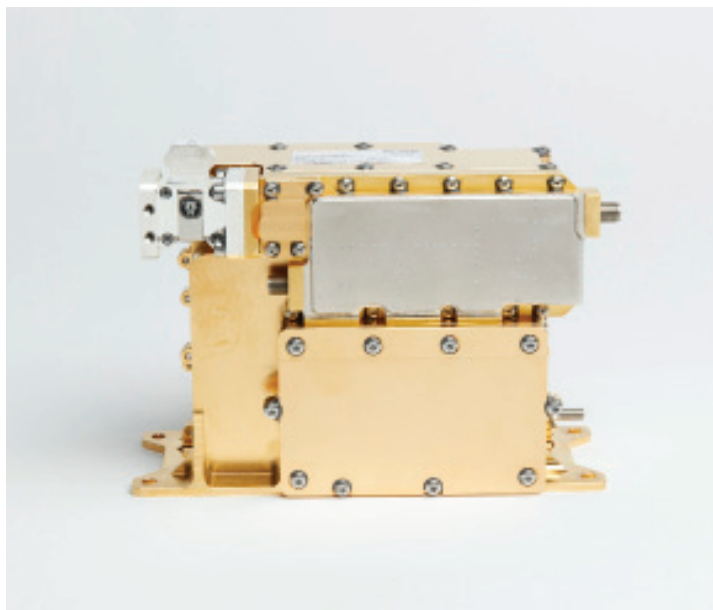
The Compact Ka-band Frequency Receiver and Converter for 30 GHz-to-20 GHz Conversion (and 24-to-17 GHz) includes internal LO generation and EPC for most satellite Bus standards. The equipment is built using the latest MMIC technologies for excellent RF performance. The Compact design facilitates low cost adaptation to LO frequencies up to 12 GHz.

Production

- Well-known technologies and established processes
- Extensive clean-room facilities
- Highly automated testing and data collection
- Inhouse facilities for environmental testing

Heritage

RUAG Space has manufactured and delivered Ka-band equipment for more than two decades. The heritage includes more than 220 frequency downconverters, and 90 upconverters for the Spaceway and Hispasat AG1 programmes.



Ka-band Compact converter - view from the side

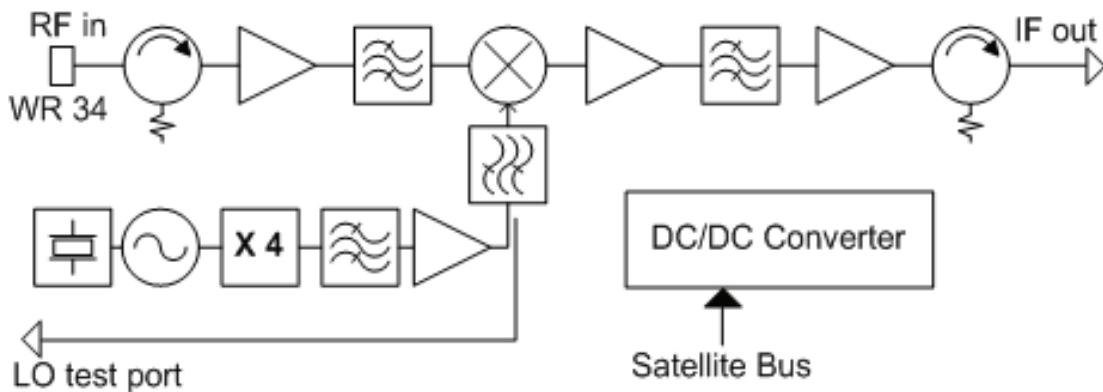
Modularity

The modular design allows the equipment to be configured for different frequency plans as well as for a variety of DC and TM/TC interfaces.

Compact design

Extensive use of MMIC and miniaturization technologies are employed to give small size and low mass. The high level of integration result in improved producibility and short lead times.

Compact Receiver and Converter block diagram



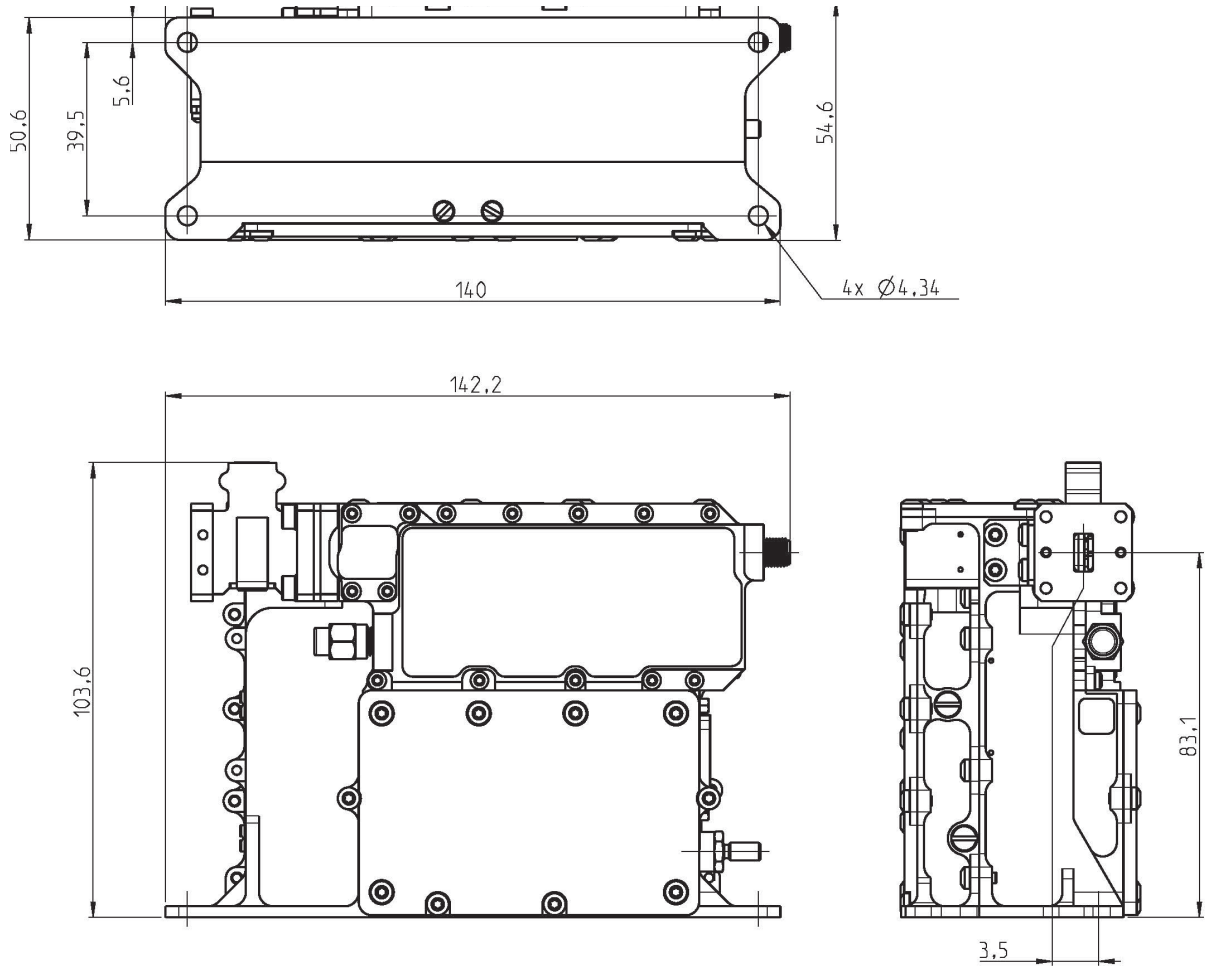
Design features

- Modular design, adaptable to different frequency plans
- Waveguide input
- Constant gain over temperature or gain boost function (gain increases with temperature)

Technical Data

Parameter	Typical Performance
Frequency range, Input	24.5 - 25.5 GHz (24/17 Converter / Receiver) 27.5 - 31.0 GHz (30/20 Converter / Receiver)
Frequency range, Output	17.3 - 17.8 GHz (24/17 Converter / Receiver) 17.7 - 21.2 GHz (30/20 Converter / Receiver)
LO Frequency range	7 - 12 GHz
Input Power:	Converter: -20 dBm (nom/carrier) Receiver: -50 dBm (nom/carrier)
Gain	Converter: 27 - 33 dB (Optimum RF performance) Receiver: 58 - 54 dB (Optimum RF performance)
Transmit Band Gain	Converter <-20 dB Receiver: < 0 dB
OIP3	30 dBm (24/17 Converter / Receiver) 32 dBm (30/20 Converter / Receiver)
Noise figure	< 2.3 dB Receiver < 14 dB Converter

Mechanical ICD



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